



March 29, 2010

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PUBLIC UTILITIES
COMMISSION

FILED

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Vice President
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Dean Nishina
Executive Director
Department of Commerce and Consumer Affairs
Division of Consumer Advocacy
P. O. Box 541
Honolulu, Hawaii 96813

Dear Mr. Nishina:

Subject: Docket No. 2006-0387
MECO 2007 Test Year Rate Case
Preliminary Calibration Factor Annual Report for Year 2009

Enclosed is an update to Maui Electric Company, Limited's ("MECO") preliminary annual calibration factor analysis for year 2009. MECO's preliminary report was submitted on March 19, 2010 pursuant to Hawaiian Electric Company, Inc.'s ("Hawaiian Electric") letter, dated March 15, 2010, requesting an extension of time, from March 15, 2010 to April 7, 2010, to file the final calibration factor report. As requested by the Consumer Advocate, MECO committed to filing a preliminary report by March 19, 2010. Since submitting the preliminary report, MECO was able to refine the production simulation for the calibration year, and the updated report submitted herewith provides the updated calibration factors. Although not requested by the Consumer Advocate, MECO is providing this updated information as soon as it was available to allow the Consumer Advocate more time to evaluate the results in the context of MECO's Test Year 2010 rate case proceeding in Docket No. 2009-0163. As shown in the enclosure, the changes to the preliminary calibration factors are nominal.

MECO will file the final report with a complete set of workpapers no later than April 7, 2010. The calibration factors are not expected to change.

Please call Dean Matsuura at 543-4622 if you have any questions regarding the enclosed report.

Sincerely,

Enclosure

cc: Public Utilities Commission

Maui Electric Company, Limited
Preliminary Annual Calibration Factor Report for Year 2009 (Update)
March 29, 2009

1.0 Introduction

This document provides to the Hawaii Public Utilities Commission ("Commission") and the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs ("Consumer Advocate") an update to the preliminary calibration factors for year 2009 that was filed on March 19, 2010. This update is being submitted pursuant to Hawaiian Electric Company, Inc.'s ("Hawaiian Electric") letter, dated March 15, 2010, requesting an extension of time, from March 15, 2010 to April 7, 2010 to file a final report.

As discussed further below, the preliminary calibration factors for year 2009, based on recorded January through December 2009 data, are shown in the following table. Subsequent to the preliminary report filed on March 19, 2010, further refinements to the production simulation model were made to more closely match the recorded energy production. Results of the additional analysis are shown in the following table. Also shown for comparison are the calibration factors for year 2008.

Table 1. Calibration Factors of MECO Power Plants

Plant	2008 Calibration Factor	Preliminary 2009 Calibration Factor	Preliminary 2009 Calibration Factor Update
Kahului Power Plant (Industrial Fuel Oil)	1.034	1.027	1.027
Maalaea Power Plant (diesel fuel)	1.037	1.046	1.043
System	1.036	1.038	1.035

2.0 Reasons for Differences in 2009 Modeled and Actual Results

The key contributors to the variance between 2009 modeled and actual results are as described below.

- The unpredictable and fluctuating output of the Kaheawa wind farm. In order to keep supply (generation) and demand (customer load) in balance at all times to keep the system stable, MECO's generating units must counteract the unpredictable increases and decreases in output from the wind farm. When wind farm output decreases, the output of MECO's units must increase by the same amount that the wind farm output decreased. When wind farm output increases, the output of MECO's units must decrease by the same amount that the wind farm output increased. Generating units operate less efficiently when their outputs are constantly changing. They operate

more efficiently when their outputs are steady and constant. This variability could not be accurately captured by the model. Because the diesel-fired units (diesel engines and combustion turbines) are the units that regulate frequency, their calibration factor is higher than that of the steam units (Kahului Power Plant).

- The unplanned outage of Maalaea Unit 17 ("M17") OTSG. Due to the outage of the Unit M17's OTSG from January to mid-October in 2009, M17 could not be operated in combined cycle mode. Under normal conditions, M17, Maalaea Unit 18 ("M18"), and Maalaea Unit 19 ("M19) operate as a dual train combined cycle unit. This is one of MECO's most efficient units, and therefore, it is normally one of the first units committed to serve the system load. However, for the majority of 2009, M17 was only able to operate in simple cycle mode while M18 and M19 were operated in combined cycle mode. In simple cycle mode, M17 no longer has the same efficiency compared to combined cycle operation. As a result, during this period, M17 was moved to nearly the end of the unit commitment order sequence and was rarely committed and operated due to its low operating efficiency in simple cycle mode, relative to the other available Maalaea generating units on the system. In place of the commitment of M17 in combined cycle mode, other diesel generators, mainly the Mitsubishi units, were committed. The commitment and de-commitment of the Mitsubishi units (Maalaea Unit 10, Maalaea Unit 11, Maalaea Unit 12, Maalaea Unit 13) are more variable because of their longer startup times. In addition to the Mitsubishi Units, other Maalaea units were operated more frequently than normal in place of the capacity and to serve the system load that is normally provided by M17 in combined cycle mode. These units also have lower operating efficiencies than M17 in combined cycle mode. Operation of these Maalaea units varies due to the limited capacity range and lower normal top load ratings. The larger capacity range of M17 provides more regulating reserve on the system to account for the variability in output of the Kaheawa wind farm. As a result, the varying operation of these Maalaea units in place of M17 cannot be accurately captured by the model.

3.0 Comparison of Modeled versus Actual Key Parameters

A comparison of modeled versus actual key parameters, such as heat rate, energy production and run hours, is provided in Appendix A.

APPENDICES

A. Preliminary Calibration Year 2009 Workpapers

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Table A-1**Maui Electric Company, Limited****2009 PRODUCTION SIMULATION CALIBRATION**

Kahului			
Actual Net MWH	=	205,283	
Actual MBTU	=	2,968,517	
Actual Net Heat Rate	=	14,461	BTU/kWh
Simulated Net MWH	=	211,775	
Simulated MBTU	=	2,982,000	
Simulated Net Heat Rate	=	14,081	BTU/kWh
MSFO Calibration Factor	=	Actual Heat Rate / Simulated Heat Rate	
	=	14,461 / 14,081	= 1.027

Maalaea			
Actual Net MWH	=	815,026	
Actual MBTU	=	7,570,026	
Actual Net Heat Rate	=	9,288	BTU/kWh
Simulated Net MWH	=	808,522	
Simulated MBTU	=	7,198,900	
Simulated Net Heat Rate	=	8,904	BTU/kWh
Diesel Calibration Factor	=	Actual Heat Rate / Simulated Heat Rate	
	=	9,288 / 8,904	= 1.043

TOTAL SYSTEM			
Actual Net MWH	=	1,020,309	
Actual MBTU	=	10,538,543	
Simulated Net MWH	=	1,020,297	
Simulated MBTU	=	10,180,900	
Actual Net Heat Rate	=	10,329	BTU/kWh
Simulated Net Heat Rate	=	9,978	BTU/kWh
Proposed Calib. Factor	=	Actual Heat Rate / Simulated Heat Rate	
	=	10,329 / 9,978	= 1.035

Table A-2A

Maui Electric Company, Limited

2009 PRODUCTION SIMULATION CALIBRATION

COMPARISON OF PMONTH TO ACTUALS (HEAT RATE)

KAHULUI				MAALAEA			
	Pmonth 2009	RECORDED	% DIFF		Pmonth 2009	RECORDED	% DIFF
Jan	14.113	13.910	1.43%		8.974	9.346	-4.15%
Feb	14.214	15.075	-6.06%		9.055	9.389	-3.69%
Mar	14.247	14.645	-2.79%		8.985	9.455	-5.23%
Apr	14.131	14.784	-4.62%		8.845	9.281	-4.93%
May	13.864	14.288	-3.06%		8.988	9.407	-4.66%
Jun	13.873	14.253	-2.73%		8.925	9.437	-5.74%
Jul	14.092	14.684	-4.21%		8.924	9.258	-3.75%
Aug	14.105	14.635	-3.76%		8.932	9.216	-3.18%
Sep	13.948	14.404	-3.27%		8.932	9.229	-3.33%
Oct	14.145	14.419	-1.94%		8.799	9.178	-4.30%
Nov	14.083	14.069	0.10%		8.793	9.187	-4.48%
Dec	14.201	14.562	-2.54%		8.758	9.123	-4.17%
Total	14.081	14.461	-2.70%		8.904	9.287	-4.31%

Table A-2B

Maui Electric Company, Limited

2009 PRODUCTION SIMULATION CALIBRATION

COMPARISON OF PMONTH TO ACTUALS

NET ENERGY (MWH)

Unit	2009 PMONTH	2009 ACTUAL	Difference		% of Net Gen		
			MWH	%	PMONTH	ACTUAL	DIFF
Kahului1	24,953	18,222	6,731	37%	2.07%	1.51%	0.56%
Kahului2	23,512	20,802	2,710	13%	1.95%	1.73%	0.23%
Kahului3	77,434	80,403	-2,969	-4%	6.43%	6.68%	-0.25%
Kahului4	85,876	85,855	21	0%	7.14%	7.13%	0.00%
MaalaeaX1	861	1,696	-835	-49%	0.07%	0.14%	-0.07%
MaalaeaX2	1,163	1,545	-382	-25%	0.10%	0.13%	-0.03%
Maalaea1	1,411	2,689	-1,278	-48%	0.12%	0.22%	-0.11%
Maalaea2	1,865	2,607	-742	-28%	0.15%	0.22%	-0.06%
Maalaea3	2,329	3,079	-750	-24%	0.19%	0.26%	-0.06%
Maalaea4	13,612	13,099	513	4%	1.13%	1.09%	0.04%
Maalaea5	3,285	6,359	-3,074	-48%	0.27%	0.53%	-0.26%
Maalaea6	6,828	8,930	-2,102	-24%	0.57%	0.74%	-0.17%
Maalaea7	67	653	-586	-90%	0.01%	0.05%	-0.05%
Maalaea8	10,209	10,560	-351	-3%	0.85%	0.88%	-0.03%
Maalaea9	5,913	6,397	-484	-8%	0.49%	0.53%	-0.04%
Maalae10	40,595	37,723	2,872	8%	3.37%	3.13%	0.24%
Maalae11	47,218	48,028	-810	-2%	3.92%	3.99%	-0.07%
Maalae12	36,141	36,009	132	0%	3.00%	2.99%	0.01%
Maalae13	37,556	39,219	-1,663	-4%	3.12%	3.26%	-0.14%
M141516	383,325	387,198	-3,873	-1%	31.85%	32.17%	-0.32%
M171819	216,144	209,235	6,909	3%	17.96%	17.39%	0.57%
HC&S (IPP)	73,462	73,465	-3	0%	6.10%	6.10%	0.00%
KWP (IPP)	109,658	109,668	-10	0%	9.11%	9.11%	0.00%
MAKILA HYDRO (IPP)	14	15	-1	-4%	0.00%	0.00%	0.00%
TOTAL	1,203,431	1,203,456	-25	0%	100.00%	100.00%	0.00%

Figure A-1

Maul Electric Company, Limited

COMPARISON OF PMONTH TO ACTUAL NET ENERGY IN GWH

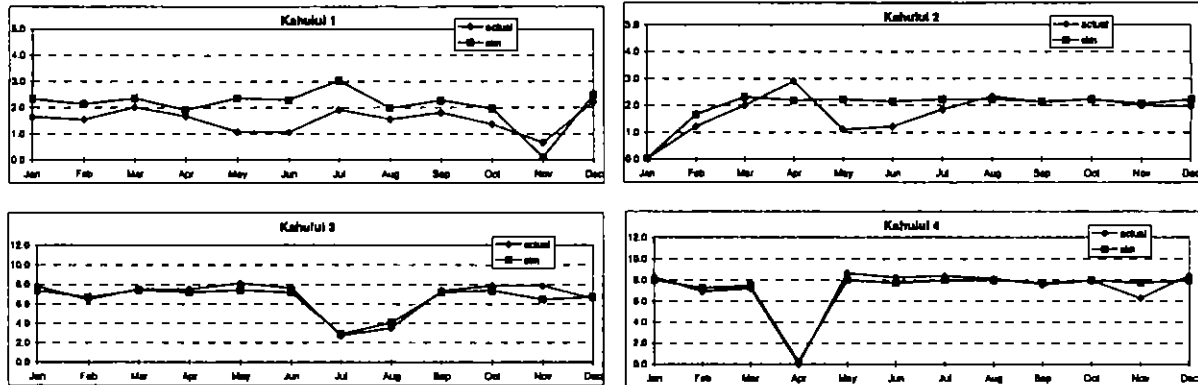


Figure A-1 (continued)

Maul Electric Company, Limited

COMPARISON OF PMONTH TO ACTUAL NET ENERGY IN GWH

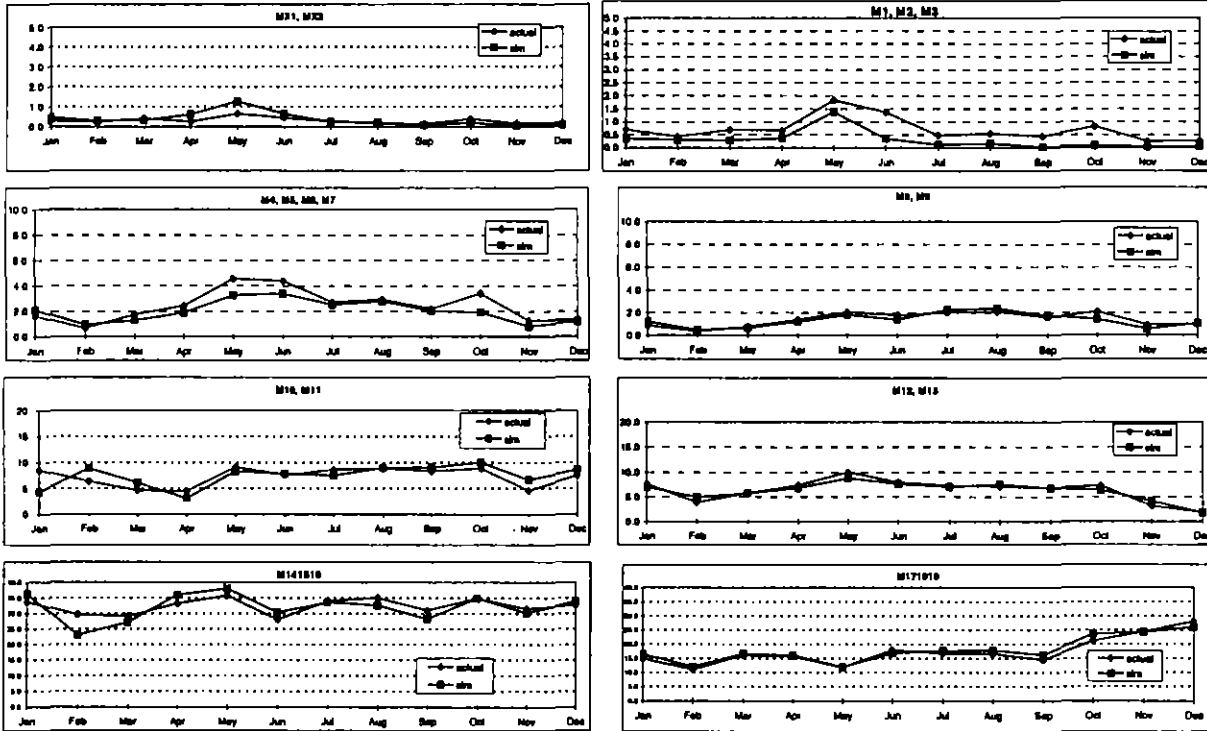


Figure A-2

Maui Electric Company, Limited

COMPARISON OF PMONTH TO ACTUAL RUNTIME IN HOURS

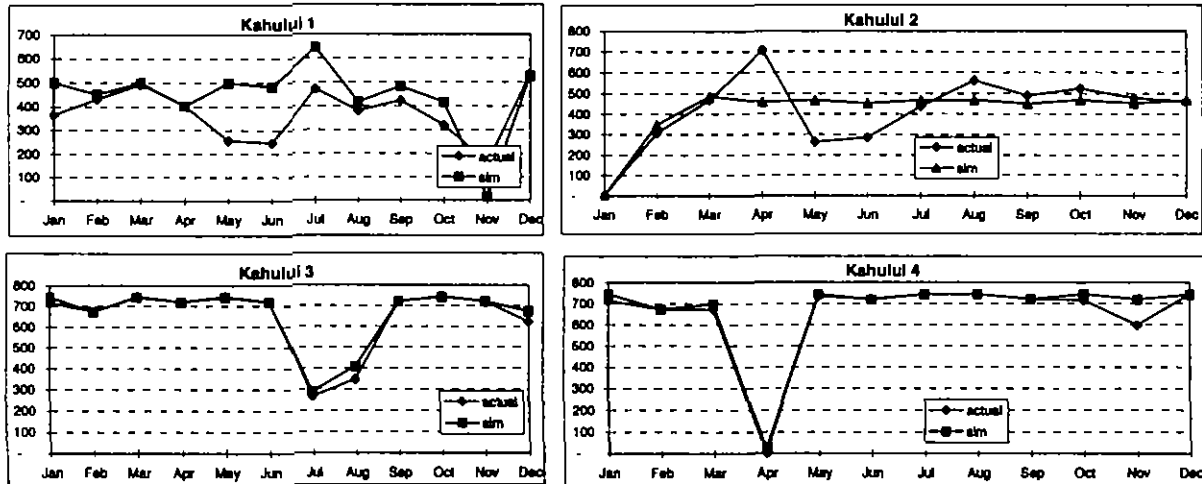


Figure A-2 (continued)

Maui Electric Company, Limited

COMPARISON OF PMONTH TO ACTUAL RUNTIME IN HOURS

